

I. REMARKS

Preliminary Remarks

Independent claims 1 and 6 are at issue in the present application. No claims are amended, withdrawn, added, or canceled. The applicants respectfully request reconsideration and allowance of the pending claims. This response is filed within the statutory period for response along with a petition for a one-month extension of time and the appropriate fee.

Patentability Remarks

Rejections under 35 U.S.C. §102(e)/103(a) –

Claim 1 was rejected under 35 U.S.C. §102(e) as allegedly being anticipated by, or under 35 U.S.C. §103(a) as allegedly being obvious over Gerspacher (U.S. Pat. No. 6,277,350). The applicants respectfully traverse.

Gerspacher discloses carbon blacks that have amorphous (*i.e.*, sp^3 , contributing non-conjugated H-atoms) and crystallite (*i.e.*, sp^2 , contributing conjugated H-atoms) carbon atoms. These two types of carbons are, however, only on the surface of the carbon black particles (see, for example, claim 1).

In contrast, the furnace carbon black of claims 1 and 6 have a specific ratio of non-conjugated hydrogen atoms to aromatic and graphitic hydrogen atoms throughout each carbon particle. This ratio is determined by inelastic neutron scattering (a claimed feature), which accurately measures the ratio throughout each particle – surface and interior. Therefore, the carbon blacks of Gerspacher do not anticipate the present invention. In addition, there is no teaching or suggestion in Gerspacher to modify the surface ratio of the carbon blacks to a ratio throughout the carbon black particles. Indeed as Gerspacher is only concerned about the surface activity of carbon blacks (*e.g.*, reducing the surface activity to make the carbon black more readily dispersible in elastomers – see the abstract), he also teaches away from the present invention. In conclusion, claim 1 is neither anticipated by, nor obvious over Gerspacher and the applicants respectfully request removal of this rejection.

Attached herewith is a declaration under 37 C.F.R. §1.132 by one of the inventors, Dr. Peter Albers, describing relevant portions of the inelastic neutron scattering (INS) technique and the results obtain by it. The declaration shows that the INS technique measures the ratio of non-conjugated hydrogen atoms to aromatic and graphitic hydrogen atoms throughout

each carbon particle, not only on the surface. In other words, the properties of the carbon blacks of the present invention are novel over the carbon blacks of Gerspacher.

Rejections under 35 U.S.C. §103(a) –

Claim 6 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Gerspacher in view of Rositani *et al.* (*Carbon* **25**, 325 – 332, 1987). The applicants respectfully traverse.

As indicated above, Gerspacher can not anticipate, or render obvious, the present invention, and even teaches away from it. Rositani *et al.* do not overcome the deficiencies of Gerspacher. For example, Rositani *et al.* do not disclose a carbon black with a ratio of non-conjugated hydrogen atoms to aromatic and graphitic hydrogen atoms of less than 1.22. Therefore, claim 6 is not unpatentable over Gerspacher in view of Rositani *et al.* and the applicants respectfully request removal of this rejection.

The applicants respectfully submit that this application is in condition for allowance and request a timely notice to that effect. The examiner is invited to contact the undersigned should any questions relating to patentability remain.

Respectfully submitted,
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